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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,591	01/26/2004	Christopher Mark Palazzini	67,097-037/EH-10890	1721

26096 7590 01/29/2007  
CARLSON, GASKEY & OLDS, P.C.  
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SUITE 350  
BIRMINGHAM, MI 48009

EXAMINER
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AFZALI, SARANG

ART UNIT	PAPER NUMBER
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3726

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/765,591

Applicant(s)

PALAZZINI ET AL.

Examiner

Sarang Afzali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed 11/13/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/26/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The applicant's amendment filed on 11/13/2006 has been fully considered and made of record.
2. Claims 12-14 are allowed:

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiggs et al. (US 5,269,058) in view of Butter (US 3,678,802).

As applied to claims 1-2, and 15-17, Wiggs et al. teach a method for forming a hollow metallic blade comprising steps of:

machining a plurality of continuous cavities (46, 47, Figs. 4-5) on a first substrate (12, Figs. 4-5) to define a plurality of ribs (48, Figs. 4-5) adjacent the cavities, and abutting the plurality of ribs on the first substrate with a second substrate (14, Fig. 5) to form a hollow blade of an airfoil shape.

Wiggs et al. teach the invention cited with the exception of exclusively teaching a machining step, which includes the step of simultaneously machining a floor and opposite interior wall surfaces of the cavities using a 3-axis machining operation.

However, Butter teaches a method of cutting individual cooling channels in a tubular wall section (body 1, Fig. 4) using a 3-axis machining operation, wherein a cutting device (13 with tool W, Fig. 6) is simultaneously machining a floor and opposite interior wall surfaces of the cavities at position (b, Fig. 4) between the converging and diverging sections (1c and 1b, Fig. 4) along a plurality of elongated cavity paths (Fig. 6) in order to provide the smallest channel width (x, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of Wiggs et al., wherein a single tool pass would simultaneously machine a floor and opposite interior wall surfaces of the cavities, to provide a minimum number of tool passes in machining and forming the desired cavities resulting in an easy and economical forming of the cavities (col. 1, lines 65-66).

Note that Butter teaches that the width tool (W) must be equal to or smaller than the smallest channel width (x, col. 3, lines 53-54) therefore, when the width of tool (W) is equal to the channel width (x), it is inherent that at that step the tool is simultaneously machining the floor and opposite interior wall surfaces of the cavity.

Also, note that Wiggs et al. teach a method of making a hollow blade which explicitly teach the Applicant's claimed invention and therefore, no patentability weight is given to the limitation of "fan blade" claimed by the Applicant since it only recites intended use of the end product while the invention is about a method of making that product.

Furthermore, note that Butter teaches a 3-axis machining operation wherein the cutting device (13 with tool W, Fig. 6) is movably positionable relative to the body (1) for cutting the cooling channels (col. 4, lines 21-23).

As applied to claims 3-8, Wiggs et al. teach that the ribs (48, Fig. 5) formed are tapered and they transition into a compound radius in an adjacent one of the cavities (Fig. 5); that the step of forming includes forming a plurality of ribs on the second substrate (14) and further step of abutting the ribs (48) on the first substrate (12) with the ribs (48) on the second substrate (14, Fig. 5); that the plurality of ribs (48) do not intersect one another and are each freestanding such that they are not intersected by any other ribs between opposite ends; and the plurality of the ribs (48) are parallel in a region adjacent a root edge.

As applied to claim 9, Wiggs et al. teach the invention cited with the exception of the number of machining passes. However, Butter teaches that the number of passes required for cutting operation depends on the width of the tool and the width of the channels which varies over the length of the workpiece (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of Wiggs et al., by using an effective and suitable number (two) of machining passes in cutting the cavities, to provide an easy and economical means of machining cavities (col. 1, lines 65-66).

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As applied to claims 10-11, Wiggs et al. teach that the cavities (46) extend continuously from one edge, the root edge (left hand edge, Fig. 3) of the substrate to another edge, the leading edge of the substrate (right edge, Fig. 3).

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. At least claims 1 and 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of US Patent 7,070,391 in view of Butter (US 3,678,802).

As applied to claims 1 and 15, although the conflicting claims are not identical, they are not patentably distinct from each other because '391 Patent does not specifically disclose the machining step includes the step of simultaneously machining a

floor and opposite interior wall surfaces of the cavities (claims 1 & 15) and the step of machining is a three-axis machining operation (claim 15). However, Butter teaches a method of cutting individual cooling channels in a tubular wall section (body 1, Fig. 4) using a 3-axis machining operation, wherein a cutting device (13 with tool W, Fig. 6) is simultaneously machining a floor and opposite interior wall surfaces of the cavities at position (b, Fig. 4) between the converging and diverging sections (1c and 1b, Fig. 4) along a plurality of elongated cavity paths (Fig. 6) in order to provide the smallest channel width (x, Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of Butter in the processing steps of '391 Patent, wherein a single tool pass would simultaneously machine a floor and opposite interior wall surfaces of the cavities, to provide a minimum number of tool passes in machining and forming the desired cavities resulting in an easy and economical forming of the cavities (col. 1, lines 65-66).

Note that Butter teaches that the width tool (W) must be equal to or smaller than the smallest channel width (x, col. 3, lines 53-54) therefore, when the width of tool (W) is equal to the channel width (x), it is inherent that at that step the tool is simultaneously machining the floor and opposite interior wall surfaces of the cavity.

Furthermore, note that Butter teaches a 3-axis machining operation wherein the cutting device (13 with tool W, Fig. 6) is movably positionable relative to the body (1) for cutting the cooling channels (col. 4, lines 21-23).

Note that Frey (US 6,340,047) and Kercher (US 3,533,712) teach the steps of forming continuous cavities and a single continuous serpentine path, however, these cavities are not done in the first substrate followed by the step of abutting the plurality of ribs on the first substrate with a second substrate to form a hollow fan blade.

### ***Response to Arguments***

7. Applicant's arguments filed 11/13/2006 have been fully considered but they are not persuasive.

Applicant has amended claims 12-14 into independent form including the allowable subject matters as set forth in office action mailed on 8/11/2006.

Applicant's sole argument is that Butter does not disclose the machining a floor and opposite interior wall surfaces along elongated paths and there is no suggestion for modifying Wiggs in accordance with the teachings of Butter.

The Examiner respectfully disagrees with this assertion. Butter indeed teaches the coolant channels are along an elongated paths (Fig. 6) and the motivation to combine Wiggs and Butter is still valid, which is to provide a minimum number of tool passes in machining and forming the desired cavities resulting in an easy and economical forming of the cavities (see Butter, col. 1, lines 65-66).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/19/2007



DAVID P. BRYANT  
SUPERVISORY PATENT EXAMINER

1/22/07